

NOTES ON THE GENUS GEUNSSIA (VERBENACEAE)

Harold N. Moldenke

Lack of time, this late in life, now prevents the preparation of the detailed monograph of this genus originally planned and announced, but it seems worthwhile to place on record for future workers the bibliographic and herbarium notes on the genus assembled by my wife, Alma L. Moldenke, and myself over the past 52 years. This is the 74th genus to be treated by us in this continuing series of papers. The herbarium acronyms employed are the same as have been used by us in all previous installments in this and certain other journals since 1933 and have been most recently been explained in *Phytologia Memoirs* 2: 463--469 (1980).

GEUNSSIA Blume, Cat. Gewas. Buitenz., imp. 1, 11--12 & 48 (1823),
Bijdr. Fl. Ned. Ind. 14: 819. 1826 [not *Geunsia* Moc. & Sessé,
1828, nor Neck., 1838, nor DC., 1904, nor Raf., 1966, nor
Gevnsia Neck., 1790, nor *Geunzia* Neck., 1790].

Synonymy: *Callicarpe* Roxb. ex W. Griff., Notul. Pl. Asiat. 4:
173. 1854 [not *Callicarpa* L., 1741, nor *Willd.*, 1824]. *Geinsia*
S. Moore ex Wangerin, Justs Bot. Jahresber. 51 (1): 555, sphalm.
1923. *Guensia* Rolfe ex Mold., Alph. List Inv. Names Suppl. 1: 10,
in syn. 1947. *Geunsis* Merr. ex Mold., Fifth Summ. 2: 520, in
syn. 1971.

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Gewas. Buitenz., imp. 1, 11--12 & 48. 1823; Blume & Nees, Flora 8:
107 & 109--110. 1825; Blume, Bijdr. Fl. Ned. Ind. 14: 819. 1826;
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& 395. 1832; Endl., Gen. Pl. 1: 638. 1838; Raf., Fl. Tellur.,
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312. 1841; Reichenb., Repert. Herb. Nom. 108. 1841; D. Dietr., Syn.
Pl. 3: 372 & 619. 1843; Hassk., Cat. Pl. Hort. Bot. Bogor. Cult.
Alt. 136. 1844; Voigt, Hort. Suburb. Calc. 465 & 473. 1845; Walp.,
Repert. Bot. Syst. 4: 116 & 131. 1845; Lindl., Veg. Kingd., ed. 1,
664. 1846; Nees in A. DC., Prodr. 11: 136. 1847; Schau. in A. DC.,
Prodr. 11: 640 & 644--646. 1847; A. L. Juss. in Orbigny, Dict.
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Spec. Syn. Candoll. 3: 73 & 198. 1858; Miq., Fl. Ind. Bat. 2: 884--
885. 1858; Lemaire & Verschaffelt, Illustr. Hort. 6: pl. 202.
1859; Miq., Fl. Ind. Bat. Suppl. 1: 243. 1860; Baill., Adansonia,
ser. 1, 3: 8. 1862; Bocq., Adansonia, ser. 1, 2: [Rev. Verbenac.]
83, 115, 121, 124, 127, 130, 140, 141, 144, 154, & 159--161 (1862)
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and 44: 473 & 508. 1979; Mold., Phytol. Mem. 2: 262, 273, 279, 286, 296, 307, 315, 319, 320, 322, 326--330, 353, 354, 377, 378, 405, & 548. 1980; Roxb., Hort. Beng., imp. 2, [83]. 1980; Mold., Phytologia 49: 430, 474, & 508. 1981.

Mostly pubescent trees or large, erect shrubs, rarely scandent or epiphytic, the pubescence usually more or less tomentose, farinose, stellate, or lanate, from scattered to very dense and furfuraceous; stems and branches tetragonal; leaves often large, mostly plainly anisophyllous, scattered or partly opposite and partly solitary between each of the pairs, or alternate by the separation of the members of a pair, sometimes apparently ternate or quaternate, simple, exstipulate, the leaf-blades mostly thick-textured or even coriaceous, usually distinctly petiolate and marginally entire, rarely serrulate, mostly densely pubescent at least on the lower surface; inflorescence determinate, centrifugal, cymose, axillary or supra-axillary, the cymes dichotomous, usually ample, corymbose, many-flowered, pedunculate, usually borne in the upper leaf-axils; lower bracts linear-subulate, upper ones minute; flowers small, hypogynous, much like those of *Callicarpa* but usually somewhat larger and 4--7- [usually 5-] merous and resinous-punctate; calyx inferior, gamosepalous, usually short-campanulate or turbinate, slightly ampliate after anthesis, the rim sinuately 4--8- (usually 5- or 6-) dentate, the teeth small, distant; corolla gamopetalous, subactinomorphic or actinomorphic, infundibular or subhypocrateriform, usually white or lavender to purple, violet, or red, the tube cylindric. antrorsely somewhat ampliate, surpassing the calyx, the limb spreading during anthesis, the segments as many as the calyx-teeth, usually 5 or 6, sometimes 4 or 7, equal or subequal, imbricate in bud, finally reflexed or involute; stamens epipetalous, inserted at or near the base of the corolla-tube, of the same number as the corolla-lobes, usually 5 or 6, isometrous, exserted; filaments filiform, elongate; anthers oblong, basi- or dorsifixed, often quite elongate, often glandulose, 2-celled, the thecae parallel, oblong to linear-lanceolate, 2--5 times as long as wide, in bud apparently dehiscing by means of a longitudinal slit, but in full anthesis by means of an apical and subobliquely gaping opening often simulating a terminal pore; pistil solitary, compound, usually 5 (rarely 4-) merous; style slender or stout, terminal, exserted; stigma broad, subpetiolate, 3--6- (mostly 5-) lobed, the lobes equal, short, broadly cuneate and obtuse; ovary superior, bicarpellary, imperfectly 3--5- (mostly 5-) celled, each cell 2-ovulate, the placentae parietal; ovules 4--10 (mostly 10), laterally attached above the middle; fruiting-calyx unchanged or slightly ampliate; fruit small, drupaceous, globose or oblate-globose, mostly red or pink when mature, situated in the persistent fruiting-calyx, the exocarp thin or fleshy and juicy, the mesocarp granular, the endocarp hard, breaking up into 5--10 (mostly 10) 1-seeded pyrenes; seeds usually equal to the number of ovules, oblong or oblong-ovoid, the testa membranaceous and thin, exaluminous; cotyledons 2, fleshy, radicle inferior.

Type species: *Geunsia farinosa* Blume.

This is a small genus of about 27 recognized specific and infraspecific taxa whose natural distribution extends from India and Burma, north into southern China, and eastward through Thailand and Malaya to the Philippine Islands, Indonesia, and New Guinea. It is named in honor of Steven Jan van Geuns (1767--1795), a Dutch writer on Belgian plants.

Interestingly, Baillon (1862) considered the genus to consist of only 2 or 3 species from the Malay Archipelago; Briquet (1895) gave 4 as the number, also from only the Malay Archipelago. Bentham (1876), Gamble (1908), and Ridley (1923) also give 3 or 4 as the number, but from both the Malay Archipelago and Malay Peninsula. Lam (1919) recognized 13 species and 6 varieties, while Angely (1956) gives it 23 species.

The genus *Geunsia*, being as closely related to *Callicarpa* as it obviously is, it is not at all surprising that authors have differed on its validity. Schauer (1847), Jussieu (1849), and Van Steenis (1967) combine it with *Callicarpa*, but it has been kept distinct by Blume (1826), Bentham (1876), Vidal (1883), Baillon (1891-1892), Gamble (1908), Hallier (1918), Lam (1919), Merrill (1921), Ridley (1923), Junell (1934), Fletcher (1938), Backer & Bakhuizen (1965), Airy Shaw (1966), and Takhtadzhian (1966). Post & Kuntze (1904) classify it in the "Chloantheae" [=Chloanthaceae]. The *Callicarpe* [sic] of Griffith (1854) appears to belong to *Geunsia* since the plate to which it refers shows pentamerous flowers; only in the text is the generic name misspelled.

Lam (1919), a careful worker with much experience in this family of plants, meticulously enumerates the differences which he saw between *Geunsia* and *Callicarpa*: "This genus is closely allied to *Callicarpa* and this is the cause, that so many authors have confounded the species of one genus with that of the other. Yet the two genera are, examining them exactly, very easily separable, though there are a number of features, which would confuse a superficial examiner. We have tried to separate distinctly the two genera, taking as a criterion the following characteristics for *Geunsia*: (1) Beside the opposite leaves, there are always alternate ones; this sometimes gives rise to the presence of (pseudo)-ternate or -quaternate leaves. (2) The petioles of the opposite leaves are always joined by a characteristic interpetiolar margin of hairs. (3) The anther-cells open by a typical widening of the upper part of the parallel fissures; (it is not a mere apical hole, as many authors pretend). (4) The ovary is (3-) 5-celled; the cells are 2-seeded.

"*Callicarpa*: (1) Only opposite leaves are present. (2) such a line is either absent or not conspicuous. (3) The anther-cells open by a long fissure, from the apex to the base. (4) The ovary is 4-celled, the cells are 1-seeded.

"This, and some other, less easily definable features, determine the general habit, which is typical for each genus, and which enable us, to separate the two genera, even then, when, as occurs, we meet with specimina, which are 4-merous and 5-merous,

and have the same habit. The latter characteristic, taken before as the criterion for separating for separating the two genera, is not sufficient for this purpose, since we discovered 4-merous specimina, which without any doubt belong to *Geunsia*, and 5-merous ones, which belong to *Callicarpa*. Many species of *Geunsia* show a close affinity with certain species of *Callicarpa*. This may indicate the phylogenetic relation between them, and may give rise to the supposition that the *Callicarpa*-species are developing from the *Geunsia*-species, which may just be a period of active mutation." He goes on to suggest that *Callicarpa longifolia* Lam. may have developed from *Geunsia pentandra* or *C. acuminatissima*, *C. longifolia* f. *floccosa* from *G. farinosa* Blume, *C. tomentosa* (L.) Murr. and *G. hexandra* (Teijsm. & Binn.) Koord. may have had a common origin, and *C. basilanensis* Merr. may have developed from *G. cumingiana* var. *tetramera* H. J. Lam.

"The 6--7-merous *Geunsia*-species may be another branch of phylogenetic development, arising from an original 5-merous form."

The *Geunsia* and *Gevnsia*, accredited to Necker in the synonymy (above), are synonyms of *Hypoestes* Soland. in the *Acanthaceae*, while his *Geunzia* is a synonym of *Samyda* Jacq. in the *Flacourtiaceae*. It is perhaps of interest to note that in the index to his work Necker retains the "v" used by him in the first-mentioned of these names and the "u" used by him in the second and third. In classic Latin "V" was usually substituted for "U" when a word or sentence was placed in what we would call upper-case letters or type. The *Geunsia* of Rafinesque is a synonym of *Geum* L. in the *Rosaceae*, while that of Sessé & Mocino and that accredited to De Candolle are synonyms of *Calandrinia* H.B.K. in the *Portulacaceae*. "*Geunsia* Raf." is said to originate in Raf., Fl. Tellur (1838), but actually the name occurs there only as "*Gevnsia* Necker".

Bentham (1876), while accepting the genus *Geunsia* as valid, comments that the "Genus certe habitu pluribus notis *Callicarpae* valde affinis, quacum junxit Schauer in DC. Prodromus... pistillo pleiomero praetermissio, folia tamen integerrima subcoriacea et corollae tubus calyce 2--3-plo longior in *Callicarpa* rarius observandur, et numerus acutus partium floralibus constans videtur, genusque distinctum tam habitu quam characteribus vindicant. Specimina examinavimus 1, a Cumingio in ins Philippinis lecta sub n. 1733 a Schauero forte vix rite ad *G. farinosam*, Bl. relata; 2 et 3, *Callicarpae acuminatissimae* et *C. hexandrae*, Teijsm. et Binnend....., et 4, speciei novae Borneensis, Beccari, n. 786. In omnibus antherae jam in alabastro rima longitudinali dehiscentes vidimus, etsi rima summo apice magis apertae poros terminales simulent."

Van Steenis (1967) comments that "Lam.....cited for *Geunsia* that it would always have some alternate leaves beside the decussate ones, that the nodes show an interpolar margin of hairs, that the anther-cells would only open in the apical part of the slit, that the ovary-cells are (3-) 5 and 2-seeded. King..... on the other hand separated *Geunsia* from *Callicarpa* only by the 5-merous flowers and 5--10 pyrenes. Lam discarded the merousness of the flowers as generic distinction....describing under *C. havi-*

landii a var. *tetramera* H. J. Lam with 4-merous flowers and fruit. I have examined it (*Haviland* 3549), but the peculiar fact is that it has 8 1-seeded pyrenes exactly as in *C. saccata*, although both Lam and King cite an isomerous number.....The only character which might hold between the genera or subgenera is the isomerous ovary and fruit in *Callicarpa* and the bimerous ovary and fruit in *Geunsia*. If such a division is possible, and data are established for all species, one might again consider the specific affinity in order to find out whether the division is natural or artificial."

Hallier (1918) comments regarding *Geunsia*: "Diese Gattung scheint ähnlich wie *Rubus*, *Rosa* und *Hieracium* in zahllose beim ersten Blick oft kaum unterscheidbare Arten gespalten zu sein und bedarf einer sorgfältigen Bearbeitung auf Grund von möglichst vollständigem Material. Ich begnüge mich hier mit der Aufstellung von 7 neuen Arten, die sich sicher von den bisher beschriebenenunterscheiden lassen.....Die meisten Arten zeichnen sich zum mindesten an den plagiotropen Sprossen durch eine einzigartige Blattstellung aus. Es befinden sich nämlich zwischen je zwei paren gegenständiger Blätter noch je zwei wechselständige Blätter. Dabei können alle Blätter ungefähr gleich und auch die Stengelglieder ungefähr gleichlang sein. Es kann aber auch der Blatt unter einem jeden Paare dicht an dasselbe heranrücken, wodurch es beinahe zur Bildung von dreigliedrigen Blattwirtern kommt. Rücksicht nun auch das Blatt über dem Paare bis dicht an dasselbe herab, dann entstehen viergliedrige Scheinwirte. Außerdem ist häufig das oberste dieser vier Blätter viel kleiner und anders geformt, wodurch eine Art ausgesprochener Anisophylie zu Stande kommt. Ja in *G. subternata* wird dieses Blatt sogar meist vollständig unterdrückt, sodass nur der axilläre Blüthenstrauss ohne Stützblatt übrig bleibt.

"Nach Briquet.....soll sich *Callicarpa* von *Geunsia* durch einen nur zweiblättrigen Fruchtknoten unterschieden. *C. longifolia* Lam. soll aber nach Koord. en Val.....4--5 Steine in der Frucht und nach Koorders.....5--6 Narbenlappen haben. Die beider Gattungen scheinen sich also nur durch die Blattstellung und die Staubbeutel, die bei *Geunsia* mit 2 kurzen apikalen Schlitzten, bei *Callicarpa* aber.....der ganzen Länge aufspringen, scharf zu unterscheiden."

The only recorded common name for the genus as a whole is the French "geunse" listed by Necker (1790).

Junell (1934) comments that "Bei den beiden Gattungen *Geunsia* und *Callicarpa* können die Zahlen verhältnisse im Gynäceum grossen Variationen unterworfen sein. Bevor die beiden Gattungen eingermassen gut bekannt waren, glaubte man, dass sie sehr gut von einander unterschieden waren, da *Geunsia* fünf (bisweilen vier oder drei) Fruchtblätter und *Callicarpa* nur zwei solche hatte. Später fand man jedoch, dass dieses Merkmal nicht stichhaltig war. Nach Lam (1919) kann man jedoch die Gattungen immer noch unterscheiden, wenn man auch den Baun der Staubblätter und die Blattstellung berücksichtigt. Lam ist der Ansicht, dass sich die Gattung *Geunsia* in diese periode aktiver Mutation befindet, und dass

man in einigen Fällen angeben kann, von welcher *Geunsia*-Arten gewissen *Callicarpa*-Arten abstammen. Die Fünfzähligen *Geunsia* Arten sollen auch die Ursprung einer Artenreihe mit sechs- bis siebenzähligen Blüten sein. -- Dem gegenüber fasst Bakhuizen van den Brink (1921) die beiden Gattungen unter dem Namen *Callicarpa* zusammen. Bei der Beschreibung der *Gynæcum*baus behalte ich die beiden Gattungen bei..... Da bei der Gattung *Geunsia* die Blüten auch hinsichtlich des *Gynæceums* fünfzählig sein können, wird diese Gattung als eine der ursprünglichsten Typen in Verbenaceae betrachtet; auch andere Merkmale sprechen dafür, dass *Geunsia* einen sehr altertümlichen Typus darstellt. *Callicarpa* steht *Geunsia* so nahe, dass es zweifelhaft ist, ob sich die Trennung der beiden Gattungen aufrecht erhalten lässt."

It may be worth noting that the Endlicher (1838) reference in the generic bibliography (above) is usually cited as "1836-1856", the titlepage date, but the page involved with *Geunsia* was actually issued in 1838; similarly the Schnitzlein (1856) reference is usually cited as "1843-1870", the titlepage date,, but the part that concerns us here was issued in 1856. Durand & Jackson (1941) give "1894" as the date for the Briquet reference, which, indeed, is the date given on the wrapper-cover of the section, but Stafleu (1967, p. 148). avers that the entire section of pp. 97-176 was not issued until February 26, 1895. Schumann & Lauferbach's paper is often cited as "1901", but seems actually to have appeared already in late 1900. Blume's original description of the genus is sometimes, apparently incorrectly, cited as "9. 1825". The genus is said to be mentioned in Fieldiana Bot. 23: 90 & 27:103, but I have been unable to find any such reference on these pages.

Excluded taxa:

- Geunsia* DC. ex Post & Kuntze, Lexicon 248, in syn. 1904 = *Calandrinia* H.B.K., Portulacaceae.
Geunsia Moc. & Sessé ex P.D.C., Prodr. 3: 358--359. 1828 = *Calandrinia* H.B.K., Portulacaceae.
Geunsia Neck, apud Raf., Fl. Tellur., imp. 1, 4: 61. 1838; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 1026, in syn. = *Hypoestes* Soland., Acanthaceae.
Geunsia beccariana Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 165. 1895 = *Callicarpa havilandii* (King & Gamble) H. J. Lam.
Geunsia fastuosa (L.) Raf., Fl. Tellur., imp. 1, 4: 61. 1838 = *Hypoestes fastuosa* (L.) R. Br., Acanthaceae.
Geunsia fastuosa (R. Br.) Raf. apud Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 27, in syn. 1921 = *Hypoestes fastuosa* (L.) R. Br., Acanthaceae.
Geunsia fastuosa Raf. apud Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 1026, in syn. 1893 = *Hypoestes fastuosa* (L.) R. Br., Acanthaceae.
Geunsia havilandii King & Gamble, Kew Bull. Misc. Inf. 1908: 105. 1908 = *Callicarpa havilandii* (King & Gamble) H. J. Lam.
Geunsia mollis Elm., Leafl. Philip. Bot. 10: 3800. 1939 = *Premna nauseosa* Blanco.

Geunsia ovata Elm. ex Mold., Résumé 295, in syn. 1959 = *Premna subscandens* Merr.

Geunsia rosea Moc. & Sesse ex P. DC., Prodr. 3: 359. 1828 = *Calandrinia caulescens* H.B.K., Portulacaceae.

Geunsia straminea Elm. ex Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 22, in syn. 1921 = *Callicarpa arborea* var. *psilocalyx* C. B. Clarke.

Geunzia Neck., Elem. Bot. 2: 440. 1790 = *Samyda* L., Flacourtiaceae.
Gevnsia Neck., Elem. Bot. 1: 33. 1790 = *Hypoestes* Soland., Acan-thaceae.

The Fortune 118, distributed in at least some herbaria as *Geunsia* sp., actually is *Callicarpa kochiana* Mak.

An artificial key to the species and infraspecific taxa of *Geunsia*

1. A woody climber or vine.....*G. scandens*.
- 1a. Shrubs, treelets, or trees, rarely epiphytic.
 2. Anthers short and broad, the proportion of length to breadth being about 2.
 3. Lower side of adult leaf-blades subglabrous, sparsely puberulous, or matted-tomentellous; veinlet reticulation often very conspicuous.
 4. Leaf-blades with an apical acumen 4.5--6.5 cm. long.....*G. acuminatissima*.
 - 4a. Leaf-blades with a much shorter acumen.
 5. Lower mature leaf-blade surface glabrous or subglabrous.
 6. Lower leaf-blade surface silvery.....*G. ramosi*.
 - 6a. Lower leaf-blade surface not silvery.
 7. Corolla glabrous, not glandulose....*G. pentandra*.
 - 7a. Corolla-lobes glandulose.....*G. apoensis*.
 - 5a. Lower mature leaf-blade surface appressed- and matted-tomentellous, arachnoid, or stellate.
 8. Leaf-blades marginally serrate.....*G. paloensis* var. *serrata*.
 - 8a. Leaf-blades marginally entire.
 9. Leaf-blades with 7--9 pairs of secondary veins; corolla-lobes externally villous at the center...
 - 9a. Leaf-blades with 9--12 pairs of secondary veins.
 10. Lower leaf-surface merely arachnoid and silvery.
 - 10a. Lower leaf-surface not arachnoid-silvery.
 11. Lower leaf-surface more or less furfuraceous, often yellowish; leaf-base gradually attenuate.....*G. paloensis*.
 - 11a. Lower leaf-surface white with matted tomentellous hairs; leaf-base abruptly attenuate..
 -*G. pentandra* var. *albidella*.
 - 3a. Lower surface of adult leaf-blades densely yellow- or brown-tomentose.

12. Corolla-lobes and stamens 4 or 5.
13. Leaf-blades to 18 cm. long and 7.5 cm. wide, usually sparsely puberulous beneath, the base attenuate; petioles to 4 cm. long; corolla-lobes villous in the center outside.....*G. pullei*.
- 13a. Leaf-blades to 28 cm. long and 14 cm. wide, densely tomentose beneath, the base often more or less cordate; corolla-lobes not at all or only minutely puberulous.
14. Leaf-blades marginally serrate.....*G. cumingiana* var. *dentata*.
- 14a. Leaf-blades marginally entire.....*G. cumingiana*.
- 12a. Corolla-lobes and stamens mostly 6 or 7.
15. Breadth of leaf-blades 2.5--7.5 cm.
16. Leaf-blades 4.5--5.5 cm. wide, basally subrotundate; petioles 1.5--2 cm. long; corolla 5- or 6-merous; filaments glandulose below; peduncles 2.5 cm. long.....*G. grandiflora*.
- 16a. Leaf-blades 2.5--5 cm. wide, basally more or less obtuse or acute; petioles to 2.5 cm. long; corolla 6- or 7-merous; filaments glabrous; peduncles 3--5 cm. long.....*G. flavida*.
- 15a. Breadth of leaf-blades 5--11 cm., length 11--24 cm.; calyx 3 mm. long; corolla 7 mm. long, softly pubescent, 6- or 7-merous.
17. Leaf-blades marginally entire.....*G. hexandra*.
- 17a. Leaf-blades marginally serrulate.....*G. hexandra* f. *serrulata*.
- 2a. Anthers long and narrow, the proportion of length to breadth about 4 or 5.
18. Corolla 7- or 8-merous; inflorescence cauliflorous, forming a stout cylindric cone.....
- 18a. Corolla 4--6-merous; inflorescence not cauliflorous nor conic.
19. Corolla 7-merous.....*G. flavida*.
- 19a. Corolla 4--6-merous.
20. Corolla 5- or 6-merous; leaves subternate, rusty-pubescent beneath, 11--17 cm. long, 4.5--7.5 cm. wide; petioles 1.5--2 cm. long; corolla minutely rugose, hardly glandulose; calyx 2.5 mm. long.....*G. grandiflora*.
- 20a. Corolla 4- or 5-merous.
21. Leaf-blades appressed- and matted-tomentellous beneath, flavidous or silvery in age, more or less furfuraceous when young.
22. Leaves plainly anisophyllous; corolla pentamerous, red.....*G. furfuracea*.
- 22a. Leaves not anisophyllous; corolla tetramerous, violet or blue.....*G. homoeophylla*.
- 21a. Leaf-blades yellow- or ferruginous-stellate-tomentose beneath, not appressed- or matted-tomentellous.
23. The tomentum ferruginous; calyx 3 mm. long; corolla-tube 4--5 mm. long, glandulose; leaf-blades coriaceous.....*G. cinnamomea*.

- 23a. Tomentum yellow or yellowish-brown; calyx 1.5--2 mm. long;
 24. Leaves subquaternate,.....*G. quaternifolia*.
 24a. Leaves opposite, alternate, or subternate.
 25. Corolla-tube 5--6 mm. long.
 26. Flowers tetramerous..*G. farinosa* var. *callicarpoides*.
 26a. Flowers pentamerous.
 27. Leaf-blades marginally entire.....*G. farinosa*.
 27a. Leaf-blades apically serrulate.....*G. farinosa* f. *serrulata*.
 25a. Corolla-tube 3--3.5 mm. long.
 28. Ovary glabrous.....*G. homoeophylla*.
 28a. Ovary glandulosa.
 29. Leaf-blades apically serrulate.....*G. serrulata*.
 29a. Leaf-blades marginally entire.....*G. serrulata* f. *anisophylla*.

GEUNSIA ACUMINATISSIMA (Teijsm. & Binn.) H. J. Lam, Verbenac. Malay. Arch. 32. 1919.

Synonymy: *Callicarpa acuminatissima* Teijsm. & Binn., Natuurk. Tijdschr. Nederl. Ind. 25: 409--410. 1863 [not *C. acuminatissima* Liu & Tseng, 1957]. *Geunsia leprosa* Teijsm. ex Mold., Résumé 295, in syn. 1959. *Geunsia acuminatissima* Bold. ex Mold., Fifth Summ. 2: 519, in syn. 1971.

Bibliography: Teijsm. & Binn., Natuurk. Tijdschr. Nederl. Ind. 25: 409--410. 1863; Benth. in Benth. & Hook., Gen. Pl. 2 (2): 1150. 1876; Gamble in King & Gamble, Journ. Asiat. Soc. Beng. 74 (2 extra): 801. 1908; H. Hallier, Meded. Rijks Herb. Leid. 37: 23. 1918; H. J. Lam, Verbenac. Malay. Arch. 31--33, [361], & 365. 1919; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 11, 106, 111, vi, & xi. 1921; A. W. Hill, Ind. Kew. Suppl. 6: 91. 1926; Fedde & Schust., Justs Bot. Jahresber. 53 (1): 1070. 1932; Mold., Prelim. Alph. List Inv. Names 9. 1940; Fedde & Schust., Justs Bot. Jahresber. 60 (2): 572. 1941; Mold., Alph. List Inv. Names 8. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 67 & 93 (1942) and ed. 2, 148, 149, & 185. 1949; Mold., Résumé 195, 199, 201, 241, 295, & 455. 1959; Mold., Fifth Summ. 1: 324, 332, 336, 338, & 403 (1971) and 2: 519, 520, & 878. 1971; Mold., Phytophologia 21: 458 & 460. 1971; Mold., Phytol. Mem. 2: 315, 322, 326, 328, & 548. 1980.

A shrub or small tree, 3--4 m. tall; branchlets subtetragonal, at first stellate-floccose or ochraceous-furfuraceous, eventually glabrescent; petioles 2.3--3.5 cm. long, at first stellate-floccose, eventually glabrescent; leaf-blades membranous or subchartaceous, oblong-ovate or elliptic, 20--27.5 cm. long, 7.5--12 cm. wide, apically very long-acuminate or caudate into a narrow almost subulate acumen which is 4.5--6.5 cm. long, marginally entire, basally ampiate and abruptly decurrent into the petiole, sometimes cuneate or inequilateral, sparsely stellate- and somewhat glandular-pilose above when young, later glabrous (except for the veins) and glandless, sparsely stellate-pilose beneath when young, glabrescent (except for the veins) and densely glandulose and somewhat lepidote beneath; inflorescence cymose, supra-axillary, about

9.5 cm. long, 4--5 cm. wide, stellate-floccose; peduncles 3.5--6 cm. long; pedicels 1--3 mm. long; calyx cupuliform, 1--1.5 mm. long, externally more or less densely stellate-floccose externally, glandulose and somewhat lepidote, the rim obsoletely 5- or 6-denticulate, the teeth deltoid; corolla infundibular, violet or light-violet to light-blue, 4--5 mm. long, externally glabrous and glandulose throughout, 5- or 6-lobed; stamens 5 or 6, about 1 cm. long; anthers short and broad, twice as long as wide, glandulose on both sides but especially dorsally, dehiscing by means of an apical widened pore-like slit; style about 8 mm. long; stigma capitate; ovary conic, externally densely glandulose, 4- or 5-celled; fruit red.

This distinct species is based on an unnumbered Teijsmann collection from Ceram, number 908.266-853 in the Leiden herbarium.

The *Callicarpa acuminatissima* of Liu & Tseng, referred to in the synonymy (above), is a synonym of *C. pilosissima* Maxim.

Gamble (1908) unjustifiedly reduced *G. acuminatissima*, along with *G. cumingiana* and *G. pentandra*, to synonymy under *G. farinosa*, but, as clearly shown in the key herein presented, this is a quite erroneous concept. Bakhuizen (1921) similarly reduced it and practically all the other species in the genus to what he called *Callicarpa pentandra* Roxb.

The corollas of *Geunsia acuminatissima* are described as having been "violet" in color on Kjellberg 838 and "light-blue" on De Bruyn 374. Collectors have found the plant growing at 50--750 m. altitude, in flower and fruit in March, and report the vernacular name, "onai".

Geunsia leprosa is apparently based on Teijsmann 246C in the Leiden herbarium. The Binnemeijer 11488 & 11550 and Kjellberg 409 collections, cited below, bear striking similarity to the *Herb. Philip. Bur. Sci.* 45741 cited hereinafter as *G. paloensis* (Elm.) H. J. Lam.

Material of *G. acuminatissima* has been misidentified and distributed in some herbaria as *Callicarpa arborea* Roxb., *C. farinosa* Roxb., *C. pentandra* f. *glabrescens* Bakh., *C. pentandra* var. *typica* (Schau.) Bakh., *C. pentandra* var. *typica* f. *farinosa* (Blume) Bakh., *C. pentandra* var. *typica* f. *genuina* Bakh., and *Geunsia farinosa* Blume.

Citations: GREATER SUNDA ISLANDS: Celebes: Binnemeijer 11488 (Bz--18300), 11550 (Bz--11550); Kjellberg 409 (Bz--18232), 838 (Bz--18231); Reppie 354 [Boschproefst. b.b.25011] (Bz--18178); Van der Vlies 307 [Boschproefst. b.b.24066] (Bz--18230). MOLUCCA ISLANDS: Amboina: DeVries s.n. (Le--908.267-328); DeVries & Teijsmann s.n. (Le--908.267-626); Forsten s.n. (Le--908.267-620, Le--908.267-893, Le--908.267-894, Z); Teijsmann H.B.1973 (Ut--11532). Ceram: Teijsmann s.n. (Le--908.266-853--type). NEW GUINEA: West Irian: Gjellerup 917 (Le--926.340-133, Ut--85748). NEW GUINEAN ISLANDS: Schouten: DeBruyn 374 (Bz--18531). LOCALITY OF COLLECTION UNDETERMINED: Collector undetermined s.n. (Bz--18329); Teijsmann 37a (Le--908.266-886), 246C (Le--908.266-347, Le--908.266-867), 246e (Le--908.266-917).

GEUNSIA ANOMALA Ridl., Kew Bull. Misc. Inf. 1929: 260. 1929.

Synonymy: *Callicarpa anomala* Ridl. ex Mold., Résumé Suppl. 15: 16, in syn. 1967. *Callicarpa anomala* (Ridl.) Burtt, Notes Roy. Bot. Gard. Edinb. 29: 149. 1969.

Bibliography: Ridl., Kew Bull. Misc. Inf. 1929: 260. 1929; A. W. Hill, Ind. Kew. Suppl. 8: 101. 1930; Fedde & Schust., Justs Bot. Jahresber. 57 (2): 401. 1938; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 65 & 93 (1942) and ed. 2, 145 & 185. 1949; Anon., Kew Bull. Gen. Index 1929-1956, 132. 1959; Mold., Résumé 192 & 455. 1959; Mold., Résumé Suppl. 15: 16. 1967; Burtt, Notes Roy. Bot. Gard. Edinb. 29: 149--151, fig. 5A. 1969; Anon., Biol. Abstr. 51 (3): B.A.S.I.C. S.30. 1970; Brentzel, Biol. Abstr. 51: 1571. 1970; Mold., Fifth Summ. 1: 324 & 404 (1971) and 2: 878. 1971; Townsend, Excerpt. Bot. A.18: 365. 1971; Heslop-Harrison, Ind. Kew. Suppl. 15: 24. 1974; Mold., Phytologia 33: 392, 481, & 482. 1976; Mold., Phytol. Mem. 2: 315 & 548. 1980.

Illustrations: Burtt, Notes Roy. Bot. Gard. Edinb. 29: 150, fig. 5A. 1969.

A densely reddish-barbate shrub; leaves opposite; petioles thick, about 1.5 cm. long, densely reddish-barbate; leaf-blades chartaceous, obovate, 15--17 cm. long, 7.5--8 cm. wide, apically cuspidate, marginally undulate and spinulose-denticulate, basally acute, scabrid-hirtous above, stellate-pilose beneath; secondaries 8 pairs; inflorescence cauliflorous, in compact dense heads; peduncles woody, issuing from below the leaves, 2--7 cm. long, finally glabrescent; bracts lanceolate, hirtous; calyx tubular, 5 mm. long, the rim 4-toothed, marginally hirtous; corolla slightly larger than the calyx, glandulose, the lobes 4, oblong-obovate; stamens 4; filaments short; anthers oblong, apically bifid; style elongate; ovary 4-celled, each cell 2-ovulate; ovules erect.

This very anomalous species is based on Haviland 760 from young jungle at Pen Kulen Ampat, First Division, Sarawak, deposited in the Kew herbarium. In his original description Ridley cites also Beccari 2759 from Sarawak and comments that "This plant in its compact cauliflorous heads of flowers is unlike anything else, but it is suggested by Staph, who has made many notes and drawings of structures on the specimen in the Kew Herbarium that this is Briquet's *Geunsia Beccariana*.....It is possible that this was the plant he referred to, but as there is nothing more than the name, it is not worth perpetuating. Merrill quotes the above number of Beccari's as *Callicarpa Havilandii*, which it is not. This plant has the given characteristics of *Geunsia* to some extent, as defined by H. J. Lam, but there do not seem to be any characters sufficiently valid to separate the two genera; as this species, however, appears to have two ovules in each cell of the ovary it had better remain in *Geunsia*."

Burtt (1969) cites Burtt & Martin B.4720, also from Sarawak, and comments that "The new material.....differs from Ridley's type in certain details. In the first place in its leaf indumentum, which consists of simple hairs, those of the type being dendroid-stellate. However, in both plants the hairs are of the

same ferruginous harsh bristly nature and on the stem of *B.4720* the main hairs have tufts of branches arising at the base; the differences are probably not fundamental. Another point, that Ridley describes the free part of the filament as short whereas in our material it is long, maybe due to Ridley's misinterpretation of Staph's sketches on the type sheet.

"This is a very odd little tree and one or two additions to Ridley's original description are worth noting, with the warning that they are taken from *B.4720* not from the type. In the first place the disposition of the leaves is curious, as it often is in this group of plants. The internodes are alternately short (c. 1 cm) and long (c. 12 cm), which means that the leaves appear to be borne in groups of four. More than that, however, the leaves of a group are not equal in size: one leaf of the lower pair is much smaller than its partner and the upper pair are both somewhat larger again, although still not quite equal.....
Callicarpa anomala seems to belong to a group of Bornean and Philippine plants characterized by their harsh bristly ferruginous indumentum (though the leaves are almost glabrous in *C. involucrata* Merrill). The inflorescences of these species are particularly interesting. The open dichotomous cyme normal for *Callicarpa*, is found in *C. havilandii* (King & Gamble) H. J. Lamthese cymes being axillary on the young leafy branchlets. From this there are two types of specialization to cauliflory: in *C. barbata*.....and *C. involucrata* there is a thickened condensed peduncle but the flowers are borne on slender well-developed pedicels and give the general impression of being fasciculate. In *C. anomala* the inflorescence is again cauliflorous on a stout peduncle, but this is continued as the central axis of the pendulous inflorescence which has numerous lateral cymules so congested on to one another that the whole forms a stout cylindrical cone up to 12 cm long. The lateral cymules are about 8-flowered, spread at right angles from the main axis, and are so well co-ordinated in their growth that the outline of the inflorescence is quite even.

"At Semengoh *C. anomala* is a small tree about 5 m high with a trunk about 5--7 cm in diameter. On this the very dense pendulous inflorescences are borne on short woody stalks. The whole structure becomes covered with mucilage as it matures, just as happens in the very different plant *Plagiostachys* (*Zingiberaceae*), which grows nearby. The flowers are tetramerous, white, with a cone of anthers and exserted stigma; the fruit eventually ripens to a bright red berry."

It seems to me most probable that this plant will eventually be found to represent a new and as yet undescribed genus, probably including the cauliflorous taxa now still in *Callicarpa*.

GEUNSIA APOENSIS (Elm.) Mold., Phytologia 5: 8 [as "apoensis"].
1954.

Synonymy: *Callicarpa apoensis* Elm., Leafl. Philip. Bot. 3: 861--862. 1910. *Callicarpa pentandra* var. *paloensis* f. *apoensis* (Elm.) Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3:

14. 1921. *Callicarpa pentandra* var. *paloensis* f. *apoensis* Bakh. ex E. D. Merr., Enum. Philip. Flow. Pl. 3: 382, in syn. 1923. *Callicarpa apoensis* Elm. ex Mold., Phytologia 2: 93. 1945. *Geunsia apoensis* (Elm.) Mold., Phytologia 5: 8. 1954. *Callicarpa apaoensis* Elm. ex Mold., Fifth Summ. 1: 404, in syn. 1971. *Geunsia apaoensis* (Elm.) Mold., Fifth Summ. 1: 404. 1971.

Bibliography: Elm., Leafl. Philip. Bot. 3: 861--862. 1910; H. J. Lam, Verbenac. Malay. Arch. 33 & [361]. 1919; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 11, 14, 106, & vi. 1921; Prain, Ind. Kew. Suppl. 5, imp. 1, 43. 1921; E. D. Merr., Enum. Philip. Flow. Pl. 3: 382. 1923; Fedde & Schust., Justs Bot. Jahresber. 53 (1): 1070. 1932; Elm., Leafl. Philip. Bot. 10: 3860. 1939; Mold., Alph. List Comm. Names 18. 1939; Mold., Prelim. Alph. List Inv. Names 12. 1940; Mold., Alph. List Inv. Names 10. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 61, 65, & 86. 1942; Mold., Phytologia 2: 93. 1945; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 140, 146, & 176. 1949; Mold., Phytologia 5: 8. 1954; Anon., U. S. Dept. Agr. Bot. Subj. Index 15: 14354. 1958; Mold., Résumé 184, 193, 195, 246, & 455. 1959; G. Taylor, Ind. Kew. Suppl. 12: 63. 1959; Prain, Ind. Kew. Suppl. 5, imp. 2, 43. 1960; Mold., Résumé Suppl. 13: 6. 1966; Mold., Fifth Summ. 1: 316, 324, 404, & 415 (1971) and 2: 878. 1971; Mold., Phytol. Mem. 2: 307, 315, & 548. 1980.

A fine, tall, erect tree, 2--13 or more m. tall; trunk to 45 cm. in diameter at breast height; branches borne mainly toward the top, crookedly rebranched and forming a flattish crown; twigs not numerous, heavy, suberect, more or less angular, the terminal portion greenish and covered with a grayish-brown pulverulence; wood very soft, whitish, with no odor nor taste; bark yellowish-brown, rather firmly checked longitudinally; leaves opposite, ascending or horizontal, curvately conduplicate; petioles stout, about 3 cm. long, finely sordid-yellowish-brown- or gray-scurfy; leaf-blades often folded longitudinally, oblong to subelliptic, 10--20 cm. long, averaging 7.5 cm. wide, apically acute to short-acuminate, marginally entire, basally obtuse to cuneate, dark-green and glabrous above, green and glabrous beneath or "grayish-white with dirty-brown nerves and bright yellow glistening glands" beneath; midrib prominent beneath, glabrate or finely ashy-scurfy; secondaries oblique, 9--12 pairs, reticulated united at their tips, all yellowish when fresh, brown in drying; crosswise tertiaries relatively conspicuous; veinlet reticulation fine; inflorescence erect, borne in the uppermost leaf-axils; peduncles stout, about 7.5 cm. long, strict, pulverulent, more or less covered with glistening glands, bearing a few bracts apically; corymbs paniculate, about 10 cm. wide, all the inflorescence-branches grayish-tomentose, subtended by bracts, only sparsely sprinkled with glands; flowers 4--6-merous, clustered at the ends of the ultimate inflorescence-branches, sessile, the fascicles subtended by unequal spatulate bracteoles, the individual flowers subtended by circles of short straw-colored hairs; calyx cupuliform, about 1.5 mm. long and apically almost as wide, externally stellately short-pubescent, the rim subtruncate or obscurely denticulate and exter-

nally beset with numerous light-colored glands; corolla whitish, glabrous and eglandular (except for the lobes), 3 mm. long, the tube about 1.5 mm. long, the usually 5 segments of the limb broadly oblong or subelliptic, 1.5 mm. long, externally glandular; stamens inserted at the base of the corolla-tube, well exserted; filaments glabrous; anthers short and broad, about 1 mm. long and 0.5 mm. wide, ovate-ellipsoid, basifix, bilobed; style equaling the stamens, glabrous, apically thickened; stigma oblique, discoid, obscurely lobed; ovary densely covered with light-yellow glands; fruits subglobose, red or reddish, to 3 mm. in diameter, subtended by the cyathiform fruiting-calyx, externally glandulose, with usually 4 achene-like seeds.

This species is based on Elmer 11491 from moist earth in very deep sandstone cuts along the Seriban creek, at 5750 feet altitude, Todaya, below Baclayan (the highest campsite on the mountain), Mount Apo, in Davao district, Mindanao, Philippine Islands, collected in August, 1909.

Collectors have encountered this plant in woods along streams, from sealevel to 1900 m. altitude, an flower in June. The corollas are said to have been "white" on Endert 3923 and "yellowish-white" on Kjellberg 1626. The vernacular name, "layaupan", is reportedly used by the Bagobos of Mindanao and the plant is said to be "very rare" there. Elmer (1910) says of it: "Its general appearance at once place[s] it near *Callicarpa subalbida* Elm., but there are distinct vegetative differences besides minor characters in the flowers and fruit.

Lam (1919) and Bakhuizen (1921) quite unjustifiably reduce this taxon to synonymy under *Geunsia pentandra* (Roxb.) Merr. [which they call *Callicarpa pentandra* Roxb.] and *G. paloensis* (Elm.) H. J. Lam [which Bakhuizen calls *Callicarpa pentandra* var. *paloensis* Bakh.]. Merrill (1923) cites only Elmer 11491.

Material of *Geunsia apoensis* has been misidentified and distributed in some herbaria as *Callicarpa arborea* Roxb. and *C. pentandra* var. *repleta* f. *furfuracea* Bakh. On the other hand, the Binnemeijer 10869, distributed as *Geunsia apoensis*, actually is *G. homoeophylla* H. Hallier.

Citations: PHILIPPINE ISLANDS: Mindanao: Elmer 11491 (Bisotype, Bz--18226--isotype, Mi--isotype, N--isotype, Z--photo of isotype). GREATER SUNDA ISLANDS: Celebes: Binnemeijer 12151 (Bz--18240); Kjellberg 1626 (Bz--18236, S), 2004 (Bz--18237, Bz--18238, S); Noerkas 473 (Bz--18245), 499 (Bz--18246, Bz--18247); Teijemann 13697 (Bz--18241), 13770 (Bz--18242, Bz--18243, Bz--18244). Kalimantan: Endert 3923 (Bz--72712).

GEUNSLA CINNAMOMEA H. Hallier, Meded. Rijks Herb. Leid. 37: 30--32. 1918.

Bibliography: H. Hallier, Meded. Rijks Herb. Leid. 37: 30--32. 1918; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 11, 111, & xi. 1921; A. W. Hill, Ind. Kew. Suppl. 6: 91. 1926; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 66 & 93 (1942) and ed. 2, 147 & 185. 1949; Mold., Résumé 195 & 455. 1959; Mold., Fifth Summ. 1: 324 (1971) and 2: 378. 1971; Mold., Phytol. Mem. 2:

315 & 548. 1980.

A tree; branchlets obtusely tetragonal, 3--5 mm. thick, densely cinnamomeous- or ferruginous-farinaceous or subfloccose on the younger portions, the older portions gradually less so and more dark-brown; internodes marked by 2 prominent opposite and transverse lines or annulations, those beneath the opposite leaves 1--4 cm. long, those above 1.5--3 cm. long; leaves anisophyllous, seemingly quaternate, 2 alternate ones somewhat separated from the 2 opposite ones, the 3 lower ones subequal, the 4th (uppermost) conspicuously smaller but otherwise similar in form; petioles short, robust, semi-terete, 2-angled beneath, 1--3 cm. long, densely cinnamomeous-farinose; leaf-blades thick, herbaceous-subcoriaceous or leathery, elongate ovate-lanceolate, apically rather long and narrowly caudate-acuminate, marginally revolute and entire or here and there obsoletely serrulate, basally equilateral or slightly inequilateral and subrotundate, sordid-green or fuscous above in drying, dull, loosely and sparsely stellate with minute hairs above (except for the densely cinnamomeous- or ferruginous-tomentellous midrib), densely ochraceous- or ferruginous-tomentellous beneath (except for the very densely cinnamomeous-farinose-stellate venation), prominently pinnate-veined with a loosely clavate reticulum, the larger blades to over 20 cm. long (including the acumen which is about 3 cm. long and basally 1 cm. wide) and about 7 cm. wide, the fourth one to 13 cm. long and 5 cm. wide but usually even smaller; peduncles stout, rigid, obtusely tetragonal, 1.5--3.5 cm. long, longer than the petioles, densely cinnamomeous-farinose; corymbs small, to 4.5 cm. long, densely cinnamomeous-farinose, repeatedly dichotomous, with stout, obtusely tetragonal inflorescence-branches; primary bracts subulate-linear, to 10 mm. long, not at all or only very shortly adnate to the cyme-branchlets which they subtend; pedicels very short, about 0.5 mm. long; calyx cupuliform, 2.5--3 mm. long, externally densely cinnamomeous-floccose, apically 5-angular, the rim conspicuously 5-dentate; corolla elongate-ovate, 5-merous, the tube 4--5 mm. long, externally densely and very minutely pulverulent-puberulent, sparsely glandular-punctulate, apically coarsely and loosely stellate-tomentellous, the lobes 5, ovate, apically obtuse, reflexed during anthesis; stamens 5, inserted in the corolla-tube; filaments glabrous, exserted about 3 mm. from the corolla-mouth; anthers elongate, long and narrow, 4--5 times as long as wide, about 2.5 mm. long, apically emarginate, dehiscing by means of 2 rather long slits, introrse, basally shortly sagittate, dorsifixed at the apical sinus, glandular-punctulate on the connective; style about 8 mm. long, slightly surpassing the stamens, clavate, glabrous, subulate-angular; stigma terminal, lobed; fruit drupeaceous, globose, about 3 mm. long and wide, drying black or blackish, externally pale and very minutely and sparsely glandular-punctulate, apically subumbilicate, essentially glabrous, basally enclosed by the 3 mm. long fruiting-calyx which is 5-dentate and hardly split dorsally.

This species is based on Elbert 3461 & 3486 from Mt. Sangia-

wita, at an altitude of 600--900 m., on Kabaña island, in the southeastern part of Celebes, on October 22, 1909, deposited in Leiden herbarium (with duplicates in the Buitenzorg and Senckenberg herbaria). If a lectotype is to be selected it ought to be no. 3461 as the other cotype collection is regarded by Meeuse as representing *G. pentandra* and by others as *G. farinosa*.

Hallier (1918) comments that "Die Bearbeitung von Elbert no. 2690 u. 2760 von Buton, no. 3378 von Kabaña, 2999, 3040, u. 2760 aus S.O.-Celebes, Landschaft Rumbia, die alle aus geringeren Meereshöhe stammen und vielleicht nur zwei Formen einer und derselben Art angehören, muss ich H. J. Lam für seine unten unter *Callicarpa* erwähnte akademische Prüfungsarbeit überlassen, da das Material beider Gattungen aus dem Reichsherbar schon seit längerer Zeit ausgeliehen ist." Lam (1919) cites Elbert 2690 & 2760 as *Geunsia quaternifolia* H. Hallier.

Collectors have encountered *G. cinnamomea* at 600--900 m. altitude, flowering in October.

Material of this species has been misidentified and distributed in some herbaria as *G. pentandra* (Roxb.) Merr. and as *Callicarpa farinosa* Roxb. and *C. pentandra* Roxb. On the other hand, the Elbert 2999, distributed as *G. cinnamomea*, actually is *G. hexandra* (Teijsm. & Binn.) Koord.

Citations: GREATER SUNDA ISLANDS: Celebes: Reppie 468 [Bosch-proefst. Cel.II.450] (Bz--18581). Kabaña: Elbert 3096 [7592] (Le--938.87-455), 3461 [9217] (Le--938.87-236--cotype), 3461 [9219] (Le--942.64-998--cotype), 3461 [9262] (Le--942.63-2--cotype), 3461 [9263] (Le--938.87-233--cotype), 3461 [9264] (Le--938.87-234--cotype), 3461 [9266] (Le--942.64-997--cotype), 3461 [9440] (Le--918.302-44--cotype, Z--cotype), 3461 [9443] (Le--942.64-46--cotype), 3461 [9444] (Le--938.87-135--cotype), 3461 [9556] (Le--921.26-55--cotype), 3461 [9557] (Le--938.87-235--cotype), 3461 [9558] (Le--942.64-996--cotype), 3461 [9562] (Le--921.26-58--cotype), 3486 (Bicotype, Le--921.26-60--cotype, W--2245698--cotype), 3486 [9653] (Hk, Le--968.87-106--cotype), 3486 [9654] (Le--918.302-23--cotype), 3486 [9655] (Le--942.64-989--cotype), 3486 [9777] (Le--928.87-131--cotype), 3486 [9779] (Le--918.302-45--cotype), 3486 [9782] (Le--942.64-987--cotype, Le--942.64-988--cotype), 3486 [9783] (N--cotype).

GEUNSIA CUMINGIANA (Schau.) Rolfe, Journ. Linn. Soc. Lond. Bot. 21: 315. 1884.

Synonymy: *Callicarpa cumingiana* Schau. in A.DC., Prodr. 11: 644. 1847. *Geunsia cumingiana* Rolfe apud Vidal y Soler, Phan. Cuming. Philip. 133. 1885. *Geunsia cumingiana* var. *pentamera* H. J. Lam, Verbenac. Malay. Arch. 36. 1919. *Geunsia cumingiana* var. *tetramera* H. J. Lam, Verbenac. Malay. Arch. 36-37. 1919. *Callicarpa pentandra* var. *cumingiana* (Schau.) Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 16. 1921. *Callicarpa basilanensis* Merr. ex Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 16, in syn. 1921. *Callicarpa bastlanensis* Merr. ex Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 16 sphalm., in syn. 1921. *Geunsia farinosa* F. Vill. ex E. D. Merr., Enum. Philip. Flow. Pl. 3: 383, in syn. 1923 [not *G. farinosa* Blume, 1823]. *Callicarpa pen-*

tandra var. cumingiana Bakh. apud E. D. Merr., Enum. Philip. Flow. Pl. 3: 383, in syn. 1923. *Callicarpa pentandra* var. *cumingiana* f. *pentamera* Bakh. ex Mold., Prelim. Alph. List. Inv. Names 12, in syn. 1940. *Guensia cumingiana* (Turcz.) Rolfe ex Mold., Alph. List Inv. Names Suppl. 1: 10, in syn. 1947. *Callicarpa pentandra* var. *cumingiana* f. *genuina* Bakh. ex Mold., Résumé 246, in syn. 1959. *Callicarpa eucaudata* Merr. & Quisumb. ex Mold., Résumé 243, in syn. 1959. *Callicarpa pentandra* var. *typica* f. *pubescens* Bakh. ex Mold., Résumé 246, in syn. 1959. *Callicarpa pentandra* var. *pubescens* Bakh. ex Mold., Résumé 246, in syn. 1959. *Callicarpa pentandra* var. *cumingiana* f. *typica* Bakh. ex Mold., Résumé 246, in stn. 1959. *Geunsia cuminghamiana* Rolfe ex Mold., Résumé 295, in syn. 1959. *Geunsia cuminghamia* Rolfe ex Mold., Résumé 295, in syn. 1959. *Geunsia cumingiana* (Turcz.) Rolfe ex Mold., Résumé 295, in syn. 1959. *Geunsia cumingiana* var. *callicarpoides*. H. J. Lam in Mold., Resumé 259, in syn. 1959. *Callicarpa pentandra* var. *pubescens* f. *cumingiana* (Schau.) Bakh. ex Mold., Fifth Summ. 1: 416, in syn. 1971.

Bibliography: Schau. in A. DC., Prodr. 11: 640 & 644--645. 1847; Miq., Fl. Ind. Bat. 2: 384 & 887. 1856; Buek, Gen. Spec. Syn. Candol. 3: 73. 1858; Bocq., Adansonia, ser. 1, 3: [Rev. Verbenac.] 192. 1863; Fern.-Villar in Blanco, Fl. Filip., ed. 3, 4: Nov. App. 158. 1880; Rolfe, Journ. Linn. Soc. Lond. Bot. 21: 315. 1884; C. D. Clarke in Hook. f., Fl. Brit. India 4: 566. 1885; Vidal y Soler, Phan. Cuming. Philip. 65, 133, & 134. 1885; Vidal, Rev. Pl. Vasc. Filip. 207. 1886; K. Schum. & Hollr., Fl. Kais. Wilhelmsl. 119. 1889; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 386 & 1026. 1893; Koord., Meded. Lands Plant. Buitenz. 19: 559. 1898; Gamble in King & Gamble, Journ. Asiat. Soc. Beng. 74 (2 extra): 301. 1908; Elm., Leafl. Philip. Bot. 3: 864--866. 1910; E. D. Merr., Philip. Journ. Sci. Bot. 7: 342 & 343. 1912; H. Hallier, Meded. Rijks Herb. Leid. 37: 23. 1918; H. J. Lam, Verbenac. Malay. Arch. 30, 31, 35--37, 53, & 365. 1919; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 11, 12, 16--17, 106, 111, & vi. 1921; E. D. Merr., Enum. Philip. Flow. Pl. 3: 382, 383, & 388. 1923; H. J. Lam in Lauterb., Engl. Bot. Jahrb. 59: [87]--88. 1924; Lane-Poole, Rep. Forest Res. Terr. Papua 136. 1926; E. D. Merr., Disc. Bibl. Philip. Flow. Pl. 100. 1926; White & Francis, Proc. Roy. Soc. Queensl. 38: 257. 1927; Bakh., Journ. Arnold Arb. 10: [69]. 1929; C. T. White, Journ. Arnold Arb. 10: 263. 1929; Fedde & Schust., Justs Bot. Jahresber. 53 (1): 1070--1071. 1932; Beer & Lam, Blumea 2: 222. 1936; Mold., Alph. List Com. Names 10, 13, 19, 20, 22, 27, & 28. 1939; Mold., Prelim. Alph. List Inv. Names 9, 12, & 26. 1940; Fedde & Schust., Justs Bot. Jahresber. 60 (2): 572. 1941; Mold., Alph. List Inv. Names 8, 10, 24, & 25. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 62, 64, 66, 67, 86, & 93. 1942; Mold., Phytologia 2: 103. 1945; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, i: 386 & 1026. 1946; Mold., Alph. List Inv. Names Suppl. 1: 10. 1947; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 140, 141, 144, 146--149, 160, & 185. 1949; W. L. Phillips, Cat. Pl. Fairchild Trop. Gard. 24. 1949; Mold., Phytologia 5: 3. 1954; Mold., Résumé 184, 190, 194, 195, 199, 201, 204, 218, 242, 243,

246, 295, 297, & 455. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 386 & 1026. 1960; Mold., Résumé Suppl. 4: 7 (1962) and 8: 3. 1964; Mold., Fifth Summ. 1: 276, 316, 324, 332, 336, 338, 339, 363, 407, 408, 415, & 416 (1971) and 2: 519, 520, 525, & 878. 1971; Mold., Phytologia 20: 487 (1971), 21: 225 & 384 (1971), 22: 23 & 25 (1971), and 34: 153 & 267. 1976; Mold., Phytol. Ném. 2: 262, 307, 315, 322, 326, 328, 329, 353, & 548. 1980; Mold., Phytologia 49: 474. 1981.

A small, slender, spreading, often misshapen tree, to 20 m. tall, or a large shrub, 2--6 m. tall, branched from above the middle, usually stellate-pubescent or tomentose with pale-brown hairs throughout; bole often to 2 m. high, 5--40 cm. in diameter at breast height, often crooked and irregular; bark thick, pale-brown or brownish to brown-and-green mottled or purplish-brown, smooth, lenticellate and yellowish-green on the branches, flaky, checked, or shreddy, with many fairly shallow longitudinal fissures on the trunk; outer bark gray or light-gray to brown; inner bark light-brown to stramineous or dark straw-color; wood moderately soft to hard, dingy-white or cream to pinkish-straw or pale-brown, heavy, odorless, tasteless; branches spreading, often very hirsute or densely floccose; branchlets rather slender, obtusely tetragonal, densely floccose with longer ferruginous hairs intermixes; twigs suberect; leaves arranged as a single opposite pair followed by 1 or 2 alternate ones, rarely subterinate or subquaternate, chiefly held horizontally, often folded; petioles 1--3 cm. long, floccose-villous like the adjacent branchlets; leaf-blades submembranous, broadly oblong to ovate or broadly ovate, 7--28 cm. long, 3.5--14 cm. wide, light- or mid-green and dull above, lighter and also dull beneath (becoming pale-brown in drying), apically subabruptly attenuate-acute to acuminate, sometimes caudate with the acumen 1--3 cm. long, rarely obtuse, marginally typically entire but often coarsely undulate, basally cuneate and obtuse or rounded to subcordate and abruptly decurrent or narrowly acuminate into the petiole, hirsute with densely intermixed simple and stellate hairs above when adult and somewhat scaly and glandulose-punctate, the pubescence varying from yellow-brown or whitish-pubescent to brownish-tomentose or floccose on both surfaces, often more densely and softly stellate-tomentose beneath and somewhat glandulose and scaly, ferruginous in drying; secondaries 7--18 per side, densely hairy; cymes small or ample, many-flowered, definitely dichotomous, axillary, 2--13 cm. long, densely ferruginous- or brownish-villous; flowers at times sweetly fragrant, at other times odorless; peduncles 0.5--6 cm. long or rarely obsolete; bracts linear, 1 mm. long; calyx cyathiform, 1--2 mm. long, externally minutely rufescent-hairy or -farinose, glandulose and somewhat scaly, rarely subglabrous, the rim shortly 4- or 5-toothed; corolla tubular-hypocrateriform, violet-blue or violet to purplish-pink or lilac, 4--6 mm. long, usually about 3 times as long as the calyx, the tube externally glabrous and glandular-punctate, the limb 4- [or 5- in var. *pentamera* H. J. Lam] lobed, the lobes short, apically rounded, not at all or only minutely puberulous or dorsally sparsely farin-

ose; stamens 4 or 5, 6--10 mm. long, long-exserted; filaments pale-purple; anthers oblong, 2--3 mm. long, twice as long as wide, purple, glandulose on both sides, especially ventrally; style 8--9 mm. long, pale-purple; stigma 4- or 5-lobed, white; ovary conic, externally densely glandulose; fruiting-calyx more or less cupuliform, enclosing the fruit for about half its length; fruit drupaceous, globose or subglobose, medium-sized, about 3 mm. long and 3--5 mm. wide, sweet-tasting and eaten by birds, showy, at first green, then red or bright-red to scarlet, blue when fully mature (*Streiman & Kairo* 21107) or finally black (*Brass* 21799) or sometimes "white, turning rose when ripe" (*Floyd* 6477).

Frodin describes the bark as "white, more or less rough but not fissured or lenticular, blaze cream, wood cream, exudate and odor absent".

This species is based on *Cuming* 1707 from the Philippine Islands, deposited in the DeCandolle Herbarium at Geneva. Lam (1919) separates a var. *pentamera* for the pentamerous specimens and var. *tetramera* for the tetrumerous ones, the former based on "Com. J. I. Fl. for. no. 844" from the Philippine Islands and Nyman 52 & Weinland s.n. from New Guinea, and the latter (the typical form) based on *Cuming* 1707. Elsewhere he cites for var. *pentamera* Gjellerup 416a, 416b, & 416c and Weinland 1891 and for var. *tetramera* Elmer 13551, Robinson Herb. Lugd. Bat. 913306-92, and many New Guinea collections. He freely admits, however, that "There are many specimenina which form a transition-form between these two varieties, possessing 4- and 5-merous flowers on the same plant branch, or even inflorescence", including Gjellerup 416a, 416b, & 416d from New Guinea. He rightly speculates that *G. cumingiana* is one of the species now in an active stage of mutation. Gamble (1908) reduces *G. cumingiana* (as well as *G. pentandra* and *G. acuminateissima*) to synonymy under *G. farinosa*, but, as Lam (1919) has pointed out, this is palpably erroneous.

The species has been found growing in primary forests on hilltops, in secondary forests, secondgrowth rainforests and the edges of rainforests, low montane forests, open thickets, and old clearings, on riverbanks and on primary or secondary forested slopes, in "Kunaigrassland of old garden sites on flat land", in flat alluvial soil of garden regrowth, among shrubs and isolated trees, and in sandy soil, as well as along creek banks in rainforests, at 3--1500 m. altitude, in flower and fruit throughout the year. Brass reports it "common" in the rainforests and forest regrowth of Papua. Beer & Lam (1936) report it "common in forest regrowth". Womersley refers to it as "a tree of the valleys, becoming common in regrowth" in New Guinea, where Hoogland calls it "a fairly common tree in fairly lowland medium-sized secondary forests" and "common in low regrowth in well-drained soil of brown loam over sand". Brass asserts that it is "common" on Goodenough island. Clemens found it "common" in northeastern New Guinea where it is said to be "host to a rust".

The corollas are said to have been "pink" on *Brass* 659, 25103, & 25946, Elmer 7368, and *Herb. Philip. Bur. Sci.* 49510, "pinkish" on Clemens 41320, "purple-pink" on *Brass* 5537, "lavender-pink" on

Clemens 11195, "pale-purple" on Hoogland 3482, "rose-purple" on Koelz 13302, "rose-purple or lavender" on Fennell 1570, "violet-purple" on Sayers 21559, "purple" on Brass 392 & 24261, Fairchild 414, and Wenzel 2849, "lavender" on Frodin NGF.26229, "lilac" on Van der Sijde BW.4049, "deep-lilac" on Carr 12824 & 14870, "violet" on Fontanoza 59, "mauve" on Floyd 6477, Henty & Frodin NGF.27209, and Wiakabu & Simaga LAE.70248, "blue" on Wenzel 3398, "blue and white" on Herb. Philip. Bur. Sci. 45975, "white with purplish tinge" on White 574, "whitish with deep-lilac lobes" on Barker & Vinas LAE.66686, and "yellowish" on Herb. Philip. Forest Bur. 30368.

Common and vernacular names reported for this species are: "anayap", "bagiha", "bim", "danasi", "gagayug", "kai natavine", "kawin", "lak", "la malala", "lelema", "lekma-rendai", "nagilak", "maguilac", "malatabáko", "mala-tabáko", "manabáko", "molas-in-taloen", "mumuni", "nago", "namaulmun", "naumunmun", "oinga", "olo-lajo", "salim-batungão", "sambuyut", "sobsoganbogo", "sobsogan bogo", and "yogom".

The wood of this species is used by the natives of Mindanao for house construction, canoe poles, bolo handles, and firewood.

Hallier (1918) reports the species from Samar to Mindanao in the Philippine Islands; Elmer found it to be "rare" on Leyte; Ahern's collector reports it "not rare in the hill forests throughout the Philippine Islands".

Callicarpa eucaudata is based on *G. Edmo* s.n. [Herb. Philip. Bur. Sci. 45975] from forested slopes in Capiz Province, Panay, collected in October or November, 1925. Fennell 1570 represents material of *G. cumingiana* cultivated in Florida from seed collected on Mindanao.

The late Dr. David Fairchild has kindly supplied me with his original notes concerning his two collections of this plant. His communication reads as follows: "Copies of original notes of Fairchild Garden Expedition. Collections made during the cruise of the Cheng Ho in the Philippines and Moluccan Islands. See 'The Garden Islands of the Great East'. Scribners 1943. The collecting was done by both David Fairchild and Hugo Curran. The serial numbers are all attached to the F. G. Expedition and later may be found in the archives of that institution. The Arnold Arboretum was supplied also with a copy of these notes. The hand written originals in special books are in my desk here in The Kampong, Coconut Grove, Fla.

"*Premna* sp. F.G.Ex.No.157. A very pretty red-fruited species with lavender fragrant flowers and scarlet fruits one-eighth of an inch across. Borne in corymbs like elderberries. The birds are fond of the fruits which are sweet. I think it would make a good bird-food bush for S. Florida and at the same time be attractive-looking. Right side of road. km 54 Cotabato to Davao, Mindanao, P.I. Jan. 21, '40. Photo Beckwith Black and White B.5 Colored 10. E. D. Merrill added his guess to this as follows: '*Callicarpa* sp.' Seeds were given by the Division of Foreign Plant Introduction in Washington No. 136643."

[to be continued]